1042-8 **A Prospective Randomized Study Comparing Transvenous Cryoenergy and Radiofrequency Ablation in the Triangle of Koch: Preliminary Data**

Geert Kimman, Dominic Theuns, Tamas Szili-Torok, Marcoen Scholten, Jan Res, Luc Jordaens, Erasmus Medical Centre, Rotterdam, The Netherlands

Background. Transvenous catheter ablation of tachyarrhythmias with radiofrequency (RF) energy is effective, and safe. In most studies and registries on atrioventricular nodal reentrant tachycardia (AVNRT), a 1-3% incidence of complete heart block is mentioned. Cryothermal energy has the ability to create reversible lesions, thereby demonstrating the potential success of prospective ablation sites without inducing permanent injury.
Aim. To study advantages and additional shortcomings of both energy forms. This prospective, randomised study (Cryoenergy versus Radiofrequency Ablation in AV junctional Tachycardias) will address both AVNRT and (para)septal (PS) pathways, which run in close proximity to the compact AV node in the triangle of Koch.
Methods. In this, prospective, randomised trial, 36 patients were included. In all patients a 3D navigation system (LocaLisa) was used. The lesion was assessed with additional imaging in a subgroup. After a diagnostic EP study, AVNRT remained the diagnosis in 31 patients, right sided PS pathways were present in 5 cases. 18 AVNRT and 2 PS patients were randomised to RF ablation. This was compared with cryoablation in 13 AVNRT and 3 PS patients. A cross over of energy occurred in 2 RF patients to cryo, and in one cryo patient to RF. Follow-up is done with event recording to have long term success-data.
Results. Acute success was achieved in 90 % in the RF group versus 88% in the cryo group. The median number and range of applications in all treated patients was 7 (1-24) in the RF, and 2 (1-13) in the cryo group ($p<0.05$). The procedure and fluoroscopy times for pure AVNT were 172 and 49 min in the RF group versus 174 and 46 min for the cryo group (NS). One patient in the cryo group had a temporary complete heart block, with restoration of AV conduction 4 seconds after immediate termination of cryoablation. Long term follow-up was similar in both groups.
Conclusion. These preliminary data show that cryoablation is as effective and safe as RF ablation. Significantly less applications are necessary. This supports the use for cryoablation in the treatment of tachyarrhythmias in close proximity to the compact AV node.

1042-19 **Accuracy of Noncontact Mapping in Identifying Lines of Conduction Block as a Function of Distance**

Hiroshi Aoyama, Hiroshi Nakagawa, Jose Baltazar de Castro, Peter Spector, Daniel L. Lustgarten, Sunny S. Po, Manisha Ashar, Karen J. Beckman, Ralph Lazzara, Warren M. Jackman, Cardiac Arrhythmia Research Institute University of Oklahoma Health Sciences Center, Oklahoma City, OK

Background: A non-contact mapping system (Ensite 3000, ESI) has been developed to reconstruct endocardial potentials for single beat mapping of cardiac arrhythmias. The purpose of this study was to test the accuracy of the non-contact mapping system to identify lines of conduction block as a function of distance from the probe using a canine right atrial model. **Methods and Results:** In 6 anesthetized open chest dogs (28-45kg), one or two right atrium free-wall incisions (2.5-4.0 cm, median 3.2 cm) was created near the right atrial appendage (RAA). An epicardial pacing electrode was placed between the incisions and tricuspid annulus, and the chest was closed. A non-contact map using the multi-electrode balloon array (MEA, ESI) and an electroanatomical contact map (CARTO, Biosense Webster) were obtained simultaneously during sinus rhythm or right atrial pacing. The tip of MEA was positioned in the superior vena cava (SVC) in 5 dogs. The isopotential map visualized the line of block with propagation around the both ends for 3 of 6 incisions, located 2-13 (median 8) mm from the MEA surface. One end of the line of block was visualized for 1 incisions and no area of block was identified for 2 incisions, located 7 mm and 23-29 mm from the surface of the MEA surface, respectively. The tip of MEA was moved into the RAA, close to the incision in 4 dogs. The MEA visualized the line of block with propagation around the both ends in 5 of 6 incisions, located 0-13 (median 4.5) mm from the MEA surface and one end of the line of block for the 5th incision (6mm from the MEA surface). The length of the 7 lines of block fully visualized by MEA in either SVC or RAA, deviated from the length of the surgical incision by 0-2 mm (median 2 mm), compared to 0-2 (median 1) mm using CARTO. Virtual electrograms exhibited double atrial potentials 5-33 mm from the location of the line of block. **Conclusions:** Non-contact mapping accurately identified line of block within 13 mm from the surface of the MEA.

1042-20 **Implications of Anatomical Location on Successful Electrical Isolation of Pulmonic Veins by Lasso Catheter Guided Subtotal Circumferential Ostial Ablation**

Sanjay Dixit, Edward P. Gerstenfeld, Robert W. Rho, Vickas V. Patel, David Lin, John F. Beshai, Joseph W. Poku, Yadvendra S. Rajawat, Hemal M. Nayak, David J. Callans, Francis E. Marchlinski, University of Pennsylvania Health System, Philadelphia, PA

Electrical isolation (EI; entry / exit block) of pulmonic veins (PV) can be achieved by total and subtotal circumferential ablation (SCA). SCA may reduce incidence of PV stenosis. However, influence of PV location on EI by SCA is not defined. We report our observations in 70 pts (52±7 yrs) undergoing Lasso guided ostial PV ablation. **Methods:** The Lasso mapping catheter (LMC) was placed serially at ostium (os) of all 4 PVs. Os was defined by fluoroscopy, intracardiac ultrasound, electroanatomic map of left atrium (LA) and electrograms consistent with PV entry recorded by LMC. Lesions (90sec, 52°C, 40W) were delivered proximal to LMC pole(s) showing earliest entry (atrial followed by PV potentials). Successful PV isolation was defined by loss of potentials (entry block) and failure to capture LA when pacing circumferentially along PV os (exit block). Number of ablation lesions / PV and their distribution segmentally (4 quadrants / PV) and relative to LMC poles (10 poles / PV) was assessed. SCA was defined as EI of PV achieved with lesion distribution in ≤ 3 quadrants **Results:** 178 PV were successfully isolated (48 PV were ablated in atrial fibrillation with confirmation of EI in SR). In 58% pts, additional lesions were required after creating entry block to achieve exit block. **Conclusions:** Using Lasso guidance to confirm entry and exit block, subtotal circumferential ablation can successfully isolate majority of (73.6%) PVs. Inferior veins require fewer lesions to achieve electrical isolation.

* $p < 0.05$ (ANOVA)

	Right Superior PV (N=58)	Left Superior PV (N=60)	Right Inferior PV (N=20)	Left Inferior PV (N=40)
Total Ablation Lesions	13.2±7.4	13.2±7.8	9.6±7.8*	9.9±5.6*
Total LMC Poles Ablated	6.5±2.1	6.6±1.8	6.3±2.6	6.1±1.8
≤ 3 Quadrants Ablated/PV	41 (70.2%)	44 (73.3%)	14 (70.0%)	32 (80.0%)
≤ 2 Quadrants Ablated/PV	18 (31.0%)	11 (18.3%)	6 (30.0%)	12 (30.0%)

POSTER SESSION

1063 Pulmonary Vein Isolation for Atrial Fibrillation

Sunday, March 30, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 4:00 p.m.-5:00 p.m.

1063-9 **Improvement in Quality of Life Post Circular Mapping Guided Pulmonary Vein Isolation in Both Normal Heart and Low Ejection Fraction Patients**

Dianna Bash, Scott Rosenberg, Nassir F. Marrouche, Jens Guenther, Volker Schibgilla, Ahmad Abdul-Karim, Sharat Koul, Oussama Wazni, Mustafasahin Shaaraoui, David Martin, Alejandro Perez-Lugones, Walid Saliba, Robert Schweikert, Eduardo Saad, Johannes Brachmann, Andrea Natale, The Cleveland Clinic Foundation, Cleveland, OH, Klinikum Coburg, Coburg, Germany

We prospectively assessed the Quality of life in patients undergoing pulmonary veins (PV) isolation (PVI) using the circular mapping approach.
Methods and Results: Quality of life questionnaire (QoL) was assessed in 180 (120 men, mean age 53±11 years) out of 368 patients undergoing PV isolation for treatment of symptomatic AF at our institution. Thirty patients presented with impaired LV function (defined as LV EF < 45% and CHF symptoms with ≥ NYHA class II). All patients completed the SF-36 questionnaire pre- and 1year post PV isolation. Table represents the pre and post PV isolation results in patients with normal (gr 1) and impaired LV function (gr 2).

	Physical functioning	Role limitation due to physical health	Role limitation due to physical problem	Energy and fatigue	Emotional well being	Social Functioning	Pain	General Health
Pre PVI (gr 1)	28.7	8.3	22.2	25.2	39.7	44.2	68.9	48.5
Post PVI (gr 1)	96.8*	70.8*	65.2*	65.2*	76*	93.2*	97.2*	78.9*
Pre PVI (gr 2)	27.7	8.4	23.2	24.2	39.8	43.2	67.9	49.5
Post PVI (gr 2)	90.8*	65.8*	62.2*	61.2*	72*	93.2*	95.2*	76.9*

*<0.05; vs. Pre-PVI

Conclusion: In our preliminary experience, after circular mapping guided PV isolation a significant improvement of QoL was observed in all patients regardless of the presence of left ventricular dysfunction.